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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,391	12/07/2000	James D. Spurgeon	32040US1	9867

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EXAMINER	
HUTTON JR, WILLIAM D	

ART UNIT	PAPER NUMBER
2178	14

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/732,391	SPURGEON, JAMES D.	
	Examiner	Art Unit	
	Doug Hutton	2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,7,12-14 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7,12-14 and 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Reopening of Prosecution

In view of the appeal brief filed on 18 July 2003, PROSECUTION IS HEREBY REOPENED. As noted in the appeal brief, Examiner did not set forth the grounds of rejection for Claim 4. All rejections previously set forth are withdrawn. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "static sealing element" (Claim 4, Line 2) must be shown or the feature canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 12-14 and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donley, U.S. Patent No. 3,560,004, in view of Jenkins, U.S. Patent No. 2,464,136.

Claim 1:

Donley discloses a sealing system for a rotating machine (Column 1, Lines 6-7) having a stationary element (1, Figure 1) and a drive element (3) rotationally connected to said stationary element (Column 2, Lines 16-18), the sealing system comprising:

- a plate (36 or 37, Figure 1) comprising a bearing surface (see "bearing surfaces" of plates 36 or 37, Figure 1; Column 3, Lines 23-25), the plate for connecting to one of said drive element and said stationary element (see Figure 1); and
- a sealing assembly (6, Figure 1) comprising a resilient bellows (30, 31, 33 and 34) and a bearing surface (see "bearing surfaces" of plates 35, Figure 1; Column

3, Lines 23-25), the bellows having a tapered collar (see "tapered collar" of bellow components 33 and 34, Figure 1) extending inwardly from an end of the bellows (Column 3, Lines 18-22), and the bellows providing a force (the force is provided by springs 30 and 31, Figure 1) which causes the bearing surface of the sealing assembly to bear on the bearing surface of the plate to form a dynamic seal.

Donley fails to disclose bellows having a plurality of corrugations.

Jenkins teaches a bellows having a single corrugation (see Figure 2) and a plurality of corrugations (see Figure 3). Thus, Jenkins teaches that a bellows with a single corrugation is interchangeable with a bellows having a plurality of corrugations. Jenkins also teaches that the bellows may possess as many corrugations (either a single corrugation, or a plurality of corrugations) as the operating conditions require (Column 2, Lines 44-45). Finally, Jenkins teaches that the effectiveness of the seal depends upon proper fit and relating the parts so as to utilize the pressure to which the seal is exposed (Column 3, Lines 2-6) and that the corrugations may provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces (Column 3, Line 65 through Column 4, Line 2).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bellows, disclosed in Donley, to have a plurality of corrugations:

- because a bellows having a single corrugation is interchangeable with a bellows having a plurality of corrugations;
- because the operating conditions may require a plurality of corrugations; and
- in order to provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces,

as taught in Jenkins.

Claim 2:

Donley discloses a thrust plate (35, Figure 1) attached to the collar, said thrust plate providing said bearing surface of the sealing assembly.

Claim 4:

Donley fails to disclose a static sealing element, the static sealing element being disposed within a gap provided between the collar and the thrust plate.

Jenkins teaches a static sealing element (24 and 34, Figure 2), the static sealing element being disposed within a gap provided between the collar and the thrust plate (see Figure 1 – static sealing element 24 is "disposed within a gap" between the collar and the thrust plate) for the purpose of fixing the ends of the seal to the thrust plate (Column 1, Lines 25-29).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bellows, disclosed in Donley, to have a static sealing element, the static sealing element being disposed within a gap provided

between the collar and the thrust plate for the purpose of fixing the ends of the seal to the thrust plate, as taught by Jenkins.

Claim 5:

Donley discloses a mounting element (40 or 41, Figure 1) for connecting said plate to said one of said drive and stationary elements.

Claim 12:

Donley discloses a seal chamber (2, Figure 1) which at least partially encloses said sealing assembly.

Claim 13:

Donley discloses a seal chamber defined by the stationary element (see Figure 1).

Claim 14:

Donley discloses a seal gland (4, Figure 1) which closes an area of the seal chamber (see Figure 1).

Claim 18:

Donley discloses a resilient bellows (30, 31, 33 and 34; Figure 1) for a sealing system in a rotating machine having a stationary element (1) and a drive element (3)

rotationally connected to said stationary element (Column 2, Lines 16-18), the resilient bellows comprising:

- a hollow body (see "hollow body" of bellows, Figure 1);
- a corrugation in the body (see Figure 1); and
- a tapered collar (see "tapered collar" of bellow components 33 and 34, Figure 1) extended inwardly from and end of the body (Column 3, Lines 18-22) for receiving a plate (see Figure 1).

Donley fails to disclose bellows having a plurality of corrugations.

Jenkins teaches a bellows having a single corrugation (see Figure 2) and a plurality of corrugations (see Figure 3). Thus, Jenkins teaches that a bellows with a single corrugation is interchangeable with a bellows having a plurality of corrugations. Jenkins also teaches that the bellows may possess as many corrugations (either a single corrugation, or a plurality of corrugations) as the operating conditions require (Column 2, Lines 44-45). Finally, Jenkins teaches that the effectiveness of the seal depends upon proper fit and relating the parts so as to utilize the pressure to which the seal is exposed (Column 3, Lines 2-6) and that the corrugations may provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces (Column 3, Line 65 through Column 4, Line 2).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bellows, disclosed in Donley, to have a plurality of corrugations:

- because a bellows having a single corrugation is interchangeable with a bellows having a plurality of corrugations;
- because the operating conditions may require a plurality of corrugations; and
- in order to provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces,

as taught in Jenkins.

Claim 19:

Donley discloses a tapered collar comprising an inwardly turned edge of the body (see Figure 1).

Claim 20:

Donley discloses a tapered collar having a frustoconical shape (see Figure 1).

Claim 21:

Donley discloses a sealing structure disposed at the tapered collar for statically sealing the plate to the bellows (see Figure 1).

Claim 22:

Donley fails to expressly disclose a gasket in the "sealing structure" disposed at the tapered collar. However, Donley discloses a gasket (41, Figure 1) between another

bellows (38) and another plate (16) for use in statically sealing the plate to the bellows (Column 3, Lines 30-34).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sealing structure to include a gasket at the tapered collar for the purpose of statically sealing the plate to the bellows, as taught in Donley.

Claim 23:

Donley fails to expressly disclose a sealant in the sealing structure disposed at the tapered collar. However, sealants were well-known in the art at the time the invention was made, as demonstrated in Jenkins (Column 1, Lines 11-12).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sealing structure to include a sealant at the tapered collar, as taught in Jenkins.

Claim 24:

Donley discloses a method for forming a resilient bellows (30, 31, 33 and 34; Figure 1) for a sealing system in a rotating machine having a stationary element (1) and a drive element (3) rotationally connected to said stationary element (Column 2, Lines 16-18), the method comprising the steps of:

- forming a bellows having a hollow body (see "hollow body" of bellows, Figure 1); and

- folding an end of the body inwardly to form a collar for receiving a plate (see "inwardly folded end" of body for receiving plate 35, Figure 1).

Donley fails to disclose a "corrugated" (meaning a "plurality" of corrugations) hollow body.

Jenkins teaches a bellows having a single corrugation (see Figure 2) and a plurality of corrugations (see Figure 3). Thus, Jenkins teaches that a bellows with a single corrugation is interchangeable with a bellows having a plurality of corrugations. Jenkins also teaches that the bellows may possess as many corrugations (either a single corrugation, or a plurality of corrugations) as the operating conditions require (Column 2, Lines 44-45). Finally, Jenkins teaches that the effectiveness of the seal depends upon proper fit and relating the parts so as to utilize the pressure to which the seal is exposed (Column 3, Lines 2-6) and that the corrugations may provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces (Column 3, Line 65 through Column 4, Line 2).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bellows, disclosed in Donley, to have a plurality of corrugations:

- because a bellows having a single corrugation is interchangeable with a bellows having a plurality of corrugations;
- because the operating conditions may require a plurality of corrugations; and

- in order to provide sufficient resiliency to ensure a proper seal contact between the bearing surfaces,

as taught in Jenkins.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donley, in view of Jenkins, and further in view of Darnell, U.S. Patent No. 3,601,413.

Claim 7:

As indicated in the above rejection, Donley, in view of Jenkins, discloses every element of Claim 1. Donley also discloses a plate that provides a seáling and lubricating layer to the dynamic seal (Column 3, Lines 39-50).

Donley, in view of Jenkins, fails to disclose a plate comprising graphite. However, the selection of a known material based upon its suitability for the intended use is a design consideration within the skill of the art. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). Plates comprising graphite were well-known in the art at the time the invention was made, as demonstrated in Darnell (70 and 74, Figure 3; Column 3, Line 45 through Column 4, Line 1).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the plate, disclosed in Donley, in view of Jenkins, to comprise graphite, as taught in Darnell.

Response to Arguments

Applicant's arguments filed 18 July 2003 have been fully considered but they are not persuasive.

Arguments for Group I (Claims 1, 2, 5, 7, 12-14 and 18-23):

Applicant argues that Examiner has failed to present evidence that the Donley patent suggests the desirability of a modification of the assembly to include the type of bellows component disclosed in Jenkins. See *Appeal Brief* – Paper No. 13, Page 6, Lines 16-18).

Firstly, Donley is the base reference and Jenkins is the teaching reference. Thus, the motivation to combine the disclosure of Donley with the teaching of Jenkins will be found in Jenkins.

Secondly, the above rejections properly illustrate the motivation to combine the disclosure of Donley with the teaching of Jenkins.

Applicant also argues that Examiner has failed to provide proper motivation to incorporate the inwardly tapered collar in Donley with the bellows disclosed in Jenkins. See *Appeal Brief* – Paper No. 13, Page 6, Lines 19-21).

Donley is the base reference in the 103 rejection, and Donley discloses a inwardly tapered collar. Thus, Examiner need not provide motivation to incorporate the inwardly tapered collar in Donley with the bellows in Jenkins.

Applicant also argues that the "conflicting bellows end geometry" described in Donley and Jenkins suggests that a combination of the two designs is nonobvious. See *Appeal Brief* – Paper No. 13, Page 7, Lines 15-21).

Examiner disagrees. Jenkins is not used to teach a "bellows end geometry." Rather, Jenkins is used only to teach that *a plurality of corrugations* can be incorporated into the bellows disclosed in Donley. Thus, the "conflicting bellows end geometry" is irrelevant when analyzing whether the 103 rejection is proper. Additionally, simply that there are differences between two references is insufficient to establish that such references "teach away" from any combination thereof. *In re Beattie*, 974 F.2d 1309, 1312-13, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

Arguments for Group II (Claim 4):

Applicant's arguments with respect to Claim 4 have been considered but are moot in view of the new grounds of rejection.

Arguments for Group III (Claim 24):

Applicant argues that neither Donley nor Jenkins discloses a method for forming a mechanical seal. See *Appeal Brief* – Paper No. 10, Pages 10 and 11).

Examiner disagrees. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself.

The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Determination of the patentability of Applicant's invention is based on the product itself. As explained in the above rejection, the product described in product-by-process Claim 24 is obvious from the prior art disclosed and taught in Donley and Jenkins.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doug Hutton whose telephone number is (703) 305-1701. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached at (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2168.

WDH
October 6, 2003

ANTHONY KNIGHT
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